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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/737,135 | 12/16/2003 | Kazunari Motohashi | 09792909-5746 | 6330 |

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EXAMINER

RICKMAN, HOLLY C

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1773

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/737,135

Applicant(s)

MOTOHASHI, KAZUNARI

Examiner

Holly Rickman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/30/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: "said" is misspelled in line 16. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (US 5453886) in view of Kitamoto et al. (US 4439796).

Kobayashi et al. teach a magnetic recording medium in the form of a metal thin film tape having a substrate, a first magnetic layer having columnar grains inclined in a first direction and a second magnetic layer thereon having columnar grains inclined in a direction opposite to the first direction. The reference teaches that the maximum coercivity is 1700 Oe (i.e. greater than 100 kA/m = 1256 Oe) – see abstract; Figure 1; col. 6, lines 9-13. The total thickness of the two magnetic layers is 100 nm (1000 Angstrom) and the first magnetic layer (lower layer) is 1.2 times thicker than the second magnetic layer (upper layer). Thus, the claimed value of d_2/d_1 is equal to 0.825 (see col. 8, lines 39-41 and 60-61). The reference is silent with regard to the value of M_r .

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Kitamoto et al. teaches that it is known in the art to adjust M_r (and thereby adjust M_{rt} assuming t is fixed) in metal thin film tapes in order to increase recording density (col. 1, lines 12-20).

It would have been obvious to one of ordinary skill in the art at the time of invention to determine the optimal value of M_{rt} for the medium taught by Kobayashi et al. in order to achieve optimal recording density as suggested by Kitamoto et al. Such an optimization would have been obvious because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (US 5453886) in view of Kitamoto et al. (US 4439796), as applied to claims 1-4 above, and further in view of Sasaki et al. (US 5766766).

Kobayashi et al. in view of Kitamoto et al. teach all of the limitations of the claims except for the use of a protective layer formed from a material such as DLC.

Sasaki et al. teach that it is known in the art to use a DLC protective layer on a metal thin film tape in order to improve corrosion resistance and running stability of the medium (see abstract).

It would have been obvious to one of ordinary skill in the art at the time of invention to add a DLC protective layer as taught by Sasaki et al. to the tape medium taught by Kobayashi et al. in order to improve corrosion resistance and running stability of the tape.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman
Primary Examiner
Art Unit 1773

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October 26, 2004